What is claimed is:

1. A process for the production of an anhydrosugar alcohol, without using organic solvents, the process comprising:

- heating a selected sugar algohol or monoanhydrosugar alcohol starting material, with stirring, until molten;
- dehydrating the starting material, under vacuum and while maintaining heat and stirring, in the presence of an acid catalyst to produce a dehydrated arhydrosugar alcohol mixture; and
- purifying the anhydrosugar alcohol.
- 2. The process of Claim 1 wherein the acid catalyst is a soluble acid.
- 3. The process of Claim 2 wherein the acid catalyst is selected from the group consisting of sulfuric acid, phosphoric acid, p-toluenesulfonic acid, and pmethanesulfonic acid.
- 4. The process of Claim 1 wherein the acid catalyst is a zeolyte powder.
- 5. The process of Claim 4 wherein the zeolyte powder is selected from the group consisting of CBV 3024, 5534G, T-2665, and T-4480.
- 6. The process of Claim 1 wherein the acid catalyst is an acidic ion exchange resin.
- 7. The process of Claim 6 wherein the acidic ion exchange resin is selected from the group consisting of AG50W-X12, Amberlyst 35, Amberlyst 15, RCP21H, and Dowex 50Wx4.

- 8. The process of Claim 6 wherein the acidic ion exchange resin is added in an amount giving from about 0.01 to about 0.15 gram equivalents of resin to sugar alcohol.
- 9. The process of Claim 1 wherein the purification comprises vacuum distillation of the dehydrated anhydrosugar alcohol mixture followed by melt crystallization.
- 10. The process of Claim 1 wherein the purification comprises vacuum distillation of the dehydrated anhydrosugar alcohol mixture followed by a re-distillation.
- 11. The process of Claim 1, further comprising a final separation of the anhydrosugar alcohol by centrifugation.
- 12. The process of Claim 1, further comprising a final separation of the anhydrosugar alcohol by filtration.
- 13. A process for the production of an anhydrosugar alcohol, without using organic solvents, the process comprising:
 - heating a selected sugar alcohol or monoanhydrosugar alcohol starting material, with stirring, until molten.
 - dehydrating the molten starting material, under vacuum and while maintaining heat and stirring, in the presence of an acid catalyst, to produce a dehydrated anhydrosugar alcohol mixture;
 - vacuum distilling the dehydrated anhydrosugar alcohol mixture to produce an anhydrosugar alcohol distillate;
 - melt crystallizing the anhydrosugar alcohol distillate to produce a crystallized anhydrosugar alcohol product; and



- centrifuging the crystallized anhydrosugar alcohol product to produce a very pure anhydrosugar alcohol.
- 14. The process of Claim 13 wherein the acid catalyst comprises a soluble acid.
- 15. The process of Claim 14 wherein the soluble acid is selected from the group consisting of sulfuric acid, phosphoric acid, p-toluenesulfonic acid, and p-methanesulfonic acid.
- 16. The process of Claim 13 wherein the acid catalyst comprises a zeolyte powder.
- 17. The process of Claim 16 wherein the zeolyte powder is selected from the group consisting of CBV 3024, CBV 5534G, T-2665, and T-4480.
- 18. The process of Claim 13 wherein the acid catalyst comprises an acidic ion exchange resin.
- 19. The process of Claim 18 wherein the acidic ion exchange resin is selected from the group consisting of CBV 3024, CBV 5534G, T-2665, T-4480, AG50W-X12, Amberlyst 15, Amberlyst 35, RCP21H, and Dowex 50Wx4.
- 20. The process of Claim 13 wherein the dehydration is performed at a temperature of from about 98°C to about 191°C.
- 21. The process of Claim 13 wherein the dehydration is performed at a temperature of from about 98°C to about 130°C.
- 22. The process of Claim 13 wherein the dehydration is performed at a temperature of from about 98°C to about 120°C.
- 23. The process of Claim 13 wherein the dehydration is performed at a vacuum pressure of from about .01 Torr to about 40 Torr.

- 24. The process of Claim 13 wherein the dehydration is performed at a vacuum pressure of from about 0.1 Torr to about 10 Torr.
- 25. The process of Claim 13 wherein the dehydration is performed at a vacuum pressure of from about 1 Torr to about 10 Torr.
- 26. The process of Claim 13 wherein the vacuum distillation is performed at a vapor temperature of from about 155°C to about 170°C and a pot temperature of at least the distilling point of the dehydrated anhydrosugar alcohol.
- 27. The process of Claim 13 wherein the vacuum distillation is performed at a vapor temperature of from about 160°C to about 170°C and a pot temperature of at least the distilling point of the dehydrated anhydrosugar alcohol.
- 28. The process of Claim 13 wherein the vacuum distillation is performed at a vapor temperature of from about 165°C to about 170°C and a pot temperature of at least the distillation point of the dehydrated anhydrosugar alcohol.
- 29. The process of Claim 13 wherein the vacuum distillation is performed at a vapor temperature of 170°C and a pot temperature of at least the distillation point of the dehydrated anhydrosugar alcohol.
- 30. The process of Claim 13 wherein the vacuum distillation is performed at a vacuum pressure of from about .01 Torr to about 40 Torr.
- 31. The process of Claim 13 wherein the vacuum distillation is performed at a vacuum pressure of from about 0.1 Torr to about 10 Torr.
- 32. The process of Claim 13 wherein the vacuum distillation is performed at a vacuum pressure of from about 1 Torr to about 10 Torr.

- 33. A process for the production of purified isosorbide, without the use of organic solvents, the process comprising:
 - heating sorbitol powder at a temperature of from about 98°C to about 105°C, with stirring, until molten;
 - dehydrating the melted sorbitol by catalysis with an acidic ion
 exchange resin, added in an amount giving from about 0.01 to about
 .15 equivalents, under vacuum pressure of from about 1 Torr to about
 10 Torr, and while maintaining stirring and temperature, to form an isosorbide mixture;
 - vacuum distilling the dehydrated isosorbide at a pot temperature of approximately 180°C and a vapor temperature of approximately 170°C, and a vacuum pressure of from about 1 Torr to about 10 Torr, to form an isosorbide distillate;
 - melt crystallizing the isosorbide distillate by heating the distillate to at least approximately 65°C and then cooling the distillate, over from about 30 minutes to about 45 minutes, to a temperature of about 25°C to about 35□C to form a slurry-like isosorbide solution;
 - centrifuging the isosorbide solution and;
 - collecting the purified isosorbide.

